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## Job Stressors, Job Burnout and Work Engagement: Do Work-family Conflict and Type-A Behaviour Play Roles in Regulating them?

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### **Abstract:**

The objective of our study was to examine whether work-family conflicts and type A behaviour pattern mediate in the dependence between job stressors, job burnout, and work engagement. According to the job demands, we assumed that job stressors would influence job burnout and involvement by means of the variable of work-family conflict. Whereas type A behaviour pattern would moderate the effect of job stressors upon job burnout and work engagement. The examined group comprised medical staff (N = 282). The research results support the hypothesis to a large extent. The results confirm significantly the assumptions of the job demands – resources model, and they suggest developing the model.

**Key words:** job stressors, job burnout, work engagement, work-family conflict, type A behaviour pattern

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### **Introduction**

The burnout syndrome has been described in literature for almost forty years (Maslach & Leiter, Schaufeli, 2001). It has also been diagnosed by physicians and included in

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the international classification of mental and behaviour disorders (ICD-10, 2000). In recent years, researchers have become interested in finding out if burnout is linked to work engagement – it is often the case that the two phenomena are tested within one model (Schaufeli & Salanova, Gonzales-Roma, & Bakker, 2002). The present state of knowledge renders it possible to assume that the major reason for job burnout lies in chronic stress at the workplace, and sources of work engagement are looked for in resources. It has also been evidenced that job resources, like locus of control in work (Salanova, Peiro, & Schaufeli, 2002), social support (Bakker, Hakanen, Demerouti, & Xanthopolou, 2007), and sense of autonomy (Bakker, Demerouti, & Euwema, 2005), diminish burnout stress and strengthen involvement. Yet, besides stress buffers, there are also factors which intensify its impact. Work-family conflict is one of them. In a number of studies it has been shown that there are positive relations with burnout (Kossek & Ozeki, 1999; Burke & Greenglass, 2001) and negative ones with work engagement (Macey & Schneider, 2008; Halbesleben & Bolino, 2009). The direction of these relations is not thoroughly clear, yet it is probable that the phenomena influence one another. For instance, in longitudinal research on Dutch clerks, based upon three measurements spread over time, it has appeared that at different times there may occur different causal dependencies among job stressors, work-family conflict, and job burnout (Demerouti, Bakker, & Bulters, 2004). There also exist quite numerous studies which show that work-family conflict mediates the relations between job stress and job burnout (Parasuraman, Purohit, Godshalk, & Beutell, 1996; Peeters, Montgomery, Bakker, & Schaufeli, 2005). However, we have not found any studies in which the mediating role of this conflict between job stressors and work engagement was tested.

An important role in the development of burnout and work engagement is also played by human personal resources. Traits like hardiness (Cieślak et al., 2000), high self-esteem (Ogińska-Bulik, 2008), and a sense of self-effectiveness (Salanova et al., 2002) may buffer stress. Some other traits, however, may strengthen the effect. These include neuroticism (Cieślak et al., 2007), high reactivity (Strelau, 2006), and according to some studies, also type A behaviour (Jamal, 1999). If persons with such traits experience conditions of chronic stress, they will be highly susceptible to job burnout. Some recent studies have shown that personal resources (e.g.: optimism, self-esteem, and sense of self-effectiveness) mediate the influence of work resources upon involvement (Xanthopolou et al., 2009).

The purpose of our study is to investigate if work-family conflict and type A behaviour pattern can regulate job stressors that exert an impact upon job burnout and work engagement. We are especially interested in whether these variables strengthen stress and thus contribute to job burnout and to reduced work engagement. On the basis of reports made by other authors (e.g. Bakker et al., 2003)

we studied the following job stressors: interpersonal conflict, organisational constraints, and workload. Besides the mediating role of work-family conflict and type A behaviour pattern, we also dealt with their direct relations with job burnout and work engagement.

### **Job burnout and work engagement**

Job burnout is defined as a psychological syndrome of three symptoms – emotional exhaustion, depersonalisation, and reduced personal accomplishment (Maslach et al., 2001). Initially the phenomenon was applied only to workers in the so-called human services. Yet it appeared that job burnout is also experienced in professions which are not related to helping, for example among managers, salesmen, IT specialists, and soldiers (Demerouti et al., 2001). Thus, Maslach modified her original theory (Maslach et al., 2001). Emotional exhaustion was replaced by a more general notion of exhaustion, which means loss of physical strength as well. Depersonalisation was replaced by the notion of cynicism, which applies not only to distanced attitudes to people but also to the whole work environment. And reduced personal accomplishment was narrowed to lack of professional efficacy (Maslach et al., 2001).

In the recent years, German and Dutch researchers have suggested another approach to job burnout: the JD-R model (Job Demands–Resources) (Demerouti et al., 2001; Bakker et al., 2003). This model has become an inspiration for our studies. Its authors define burnout as long-term job stress caused by excessive job demands, which may be regulated by worker resources. Burnout consists of two components – exhaustion and disengagement from work. In comparison with the classic approach to exhaustion, the JD-R model underlines not only its emotional aspect, but also the physical and cognitive ones. Instead of depersonalisation - keeping emotional distance from a recipient - Demerouti and co-authors (2001) use it to mean disengagement from work, which is defined as a distanced attitude to recipients, co-workers, and the whole work-related context such as duties, workers' values, and organisational culture. Thus, disengagement is a broader notion which comprises both depersonalisation and lack of personal achievement.

The authors of the JD-R model also proposed a new approach to work engagement. Contrary to the idea by Maslach and Leiter (1997, after: Schaufeli et al., 2002), they treat it as a separate dimension that is complementary to burnout, and not an opposing phenomenon. Moreover, they refer to work engagement as a relatively stable and deepening affective and cognitive attitude to duties, people and objects that are related to work, and not just a temporary state (Schaufeli & Bakker, 2004). The authors characterise involvement using three symptoms – vigour, dedi-

cation, and absorption. Vigour is high level energy and psychic resistance during work-time, the will to invest effort in work, and consistency even when difficulties are faced. Dedication to work is strong identification with one's work, the sense of its importance, enthusiasm, pride in performing it. Absorption by work is meant as focusing on work, being absorbed in it, the sense that time passes fast when one is working and that it is difficult to stop working. Maslach perceives exhaustion and cynicism to be the essence of burnout, while Schaufeli and co-authors (2002) describe vigour and dedication to work as the essence of engagement. It ought to be noticed that there appears a linguistic subtlety: In the JD-R model burnout comprises a component called disengagement, and should not be mistaken as a separate construct of work engagement, including the three components described above. In our report disengagement is operationalised by the OLBI scale (Oldenburg Burnout Inventory), and work engagement – by the UWES scale (Utrecht Work Engagement Scale). The two scales are described later in the article.

In numerous research studies using the JD-R model, there has been a positive relation between job stressors and burnout and a negative one between job stressors and work engagement (Demerouti et al., 2001; Bakker et al., 2003; Mauno et al., 2007). Similar results have also been obtained in studies done on a medical staff (Schaufeli & Bakker, 2004; Hakanen et al., 2008). Thus, in **hypothesis 1 (H1)** we assume that there is a positive relation between job stressors and job burnout, and a negative one between job stressors and work engagement.

### **Work-family conflict**

Job and family are not two separate spheres of human life; they depend on one another, and roles played in the two environments merge together. It has been displayed in numerous research studies that functioning at work may influence functioning at home and vice versa (Byron, 2005; Demerouti, Bakker, & Voydanoff, 2010). The influence may be positive when functioning at home is strengthened by resources taken from work, for example high self-esteem, self-efficiency, coping with stress, and cooperation. It can also be negative when job and family demands are mutually exclusive, for example when they concern the same time period (Demerouti, Geurts, & Compier, 2004). The work-family conflict is defined as a certain type of conflict between roles, in which demands that are linked to participation in one's occupational life render it difficult or impossible to realise demands linked to family life (Greenhaus & Beutell, 1985). The difficulties may be caused by lack of time, for example, absence at a family celebration because of duties at work, by emotional tension (as anger at family members because of stress at work), and

also by different behavioural demands made by family and at work (like treating a family member as a so called “difficult client”) (Grzywacz et al., 2007).

It has been shown in numerous psychological studies that work-family conflict may be influenced by such job stressors as work burdens (Grzywacz & Marks, 2000), shift work (Demerouti, Geurts, Bakker, & Euwema, 2004), overburdening work role (Parasuraman et al., 1996), and burdening interpersonal relations (Bakker & Geurts, 2004). There are also reports on the negative effect of work-family conflict upon human behaviour at work: depression, anxiety, using psychoactive substances (Frone, 2000), dissatisfaction with work (Burke & Greenglass, 1999), low attachment to the organisation (Kelloway et al., 1999), and high job burnout among policemen (Mikkelsen & Burke, 2004), psychologists (Rupert, Stefanovic, & Hunley, 2009), warders (Lambert, Hogan, & Altheimer, 2010), teachers (Baka, 2011) and also among medical staff (Burke & Greenglass, 2001). In a meta-analysis of research, there have been evidenced positive dependencies between work-family conflict and job burnout in eight of nine studies (Kossek & Ozeki, 1999). In some less numerous research studies, negative relations between work-family conflict and work engagement are confirmed (Macey & Schneider, 2008; Halbesleben & Bolino, 2009). In **hypothesis 2 (H2)** we assume that there is a positive relation between work-family conflict and job burnout, and a negative one between work-family conflict and work engagement.

There also exist some research reports about work-family conflict that mediates between job stressors and burnout (Parasuram et al., 1996; Janssen et al., 2004; Peeters et al., 2005). For instance, according to Peeters and her co-workers (2005) work-family conflict mediates between job demands upon job burnout among a group of 1264 employees in Dutch companies. This mediating effect was also confirmed in studies on American nurses (Janssen et al., 2004) and. In a literature survey we have not found any studies that show work-family conflicts mediating between job stress and engagement. Taking into consideration the results of the studies cited above, which show that work-family conflict increases the influence of stressors on burnout, one may predict that conflict will lead to lowered engagement. In **hypothesis 3 (H3)** we assume that work-family conflict mediates the effect of job stressors upon burnout and work engagement.

### **Type A behaviour pattern**

The authors of the JD-R model argue that environmental factors are more important for burnout and work engagement than personal factors are (Bakker et al., 2003). Yet, it has been displayed in some studies that personality traits are equally significant. For instance, it has been shown that there is a positive relation between

job burnout and lack of control (Wilkerson & Bellini, 2006), neuroticism (Cieślak & Eliaz, 2004), negative affect (Kahn et al., 2006), low self-esteem (Rosse, Boss, Johnson, & Crown, 1991), coping focused on emotions (Mearns & Cain, 2003), low hardiness (Gannelen & Blaney, 1984), and also low self-effectiveness (Xanthopolou et al., 2009); whereas work engagement was positively correlated with a sense of control and high self-esteem at work (Mauno, Kinnunen, & Ruokolainen, 2007), self-effectiveness (Xanthopolou et al., 2009), minimal neuroticism, and high extraversion (Schaufeli & Salanova, 2007).

The type A behaviour pattern constitutes a personality trait that is rarely examined in empirical studies on burnout and work engagement. This pattern has been created by Friedman and Rosenman (1974, after: Wrześniewski, 2000) and is defined as “a syndrome of overt behaviour or life style that is characterised with extreme competing, achievement striving, aggressiveness, excitability, excessive vigilance, an explosive way of speaking, a sense of time pressure, and excessive responsibility” (Eliaz & Wrześniewski, 1988, p. 27). Halsten and co-workers (2003, after: Hallberg, Johansson, & Schafeli, 2007) describe it as “anxious commitment”. Persons who are characterised with this style prefer living fast and undertaking new challenges, they work under constant time pressure, and are excessively committed to their work and the roles they play. The opposite to type A is formed by type B behaviour, which is characterised with gentleness, lack of hurrying and rivalry, and lower tendency to struggle (Ogińska-Bulik, 2008). Originally, type A behaviour was associated with blood circulation and digestive diseases, and rheumatism (Wrześniewski, 2000). Sometime later, studies proved that it is also important for a person’s behaviour at work. It is correlated with high achievement level (Barling & Charbonneau, 1992), productivity (Taylor, Locke, Lee, & Gist, 1984), job satisfaction (Day & Jreige, 1992), organisational commitment (Jamal, 1999), occupational stress (Evans, Palsane, & Carrere, 1987), psychosomatic complaints (Jamal, 1990), headaches at work (Barling & Charbonneau, 1992), weak interpersonal relations, and low social support (Ganster et al., 1989).

Several studies have analysed both global type A behaviour pattern and its single components with burnout and work engagement (Hallberg et al., 2007; Jamal, 1999; Jamal & Vishwanath, 2001; Nowack, 1987). Their results are not unanimous. Some Swedish researchers have used the TABP scale (*Type A Behavior Pattern*), in which two components of type A are measured. They have proved that achievement striving is positively correlated with work engagement and not correlated with job burnout, whereas oversensitivity/impatience is negatively correlated with work engagement and positively correlated with burnout (Hallberg et al., 2007). This study is the only report on relations between type A behaviour pattern and work engagement that we have managed to find. Their results are con-

sistent with the regularity described by researchers who say that achievement striving is usually associated with health, while oversensitivity/impatience is linked to disease (Day & Jreige, 2002). Other studies have displayed slightly different dependencies. The difference may be caused by the fact that these studies used another measurement tool – the A Scale by Framingham. It measures two components – rivalry and hurry, which are different from the components measured with TABP. The Polish version of the A Scale by Framingham is also utilised in our studies (Juczyński, 2001). In a study with Canadian and Pakistani university lecturers, Jamal (1999) proved that job burnout is positively correlated with both global type A behaviour pattern and its two components – rivalry and hurry. Similar results were obtained using a group of Canadian teachers (Burke & Greenglass, 1995), Sicilian nurses (Lavanco, 1997), and American medical staff (Nowack, 1987). None of the authors enumerated above examined relations between type A behaviour pattern, as measured with Framingham's A Scale, and work engagement. On the one hand, it may be assumed that persons who like undertaking new challenges and who have a strong tendency toward rivalry and achievement striving may obtain high scores on the work engagement scale. Yet on the other hand, persons with type A are usually characterised with external motivation to work, high sensibilities to social approval (Sturman, 1999), and also to pressure, tension, and hurry (Day & Jreige, 2002), which does not favour involvement in activity, or, if so, their involvement is filled with anxiety. Thus, in **H4** we tend to assume that type A behaviour pattern will be positively related to job burnout and negatively related to work engagement.

Some studies have tested the moderating role of type A behaviour pattern. In research using Italian teachers, the authors proved that type A behaviour pattern may strengthen lack of job satisfaction stress (Zurlo et al., 2007). Experiencing strong occupational stress lowered job satisfaction mainly among teachers with type A. Similar results were obtained by Jamal (1999), who evidenced that type A intensifies occupational stress upon lack of job satisfaction and – what is important – upon burnout. In other studies the moderating function of type A in relation to job stress and burnout was not confirmed (Nowack, 1987; Hallberg et al., 2007). Our studies are aimed at replicating the studies cited above. In **H5** we predict that type A behaviour pattern will moderate burnout and work engagement in situations where there are low and high level stressors. We assume that one characteristic of type A persons consists in uneconomically expending their own energetic resources, which means that they put great effort into a task independently from its importance and deadline. Persons with low level type A behaviours (type B behaviour pattern) are more careful in expending energy resources; they intensify their effort mainly for tasks that are important and urgent (Perez-Garcia & Sanuan,

1996). Thus, we assume that persons with high intensity type A behaviour will react weakly to changing work conditions. To put it differently, in situations where there are low and high level stressors they will display a similar level of burnout and work engagement. Contrary to them, persons with low level type A behaviour will be sensitive to stressors and will react to them with burnout and low work engagement. The research scheme and the hypotheses are presented below (Fig. 1).

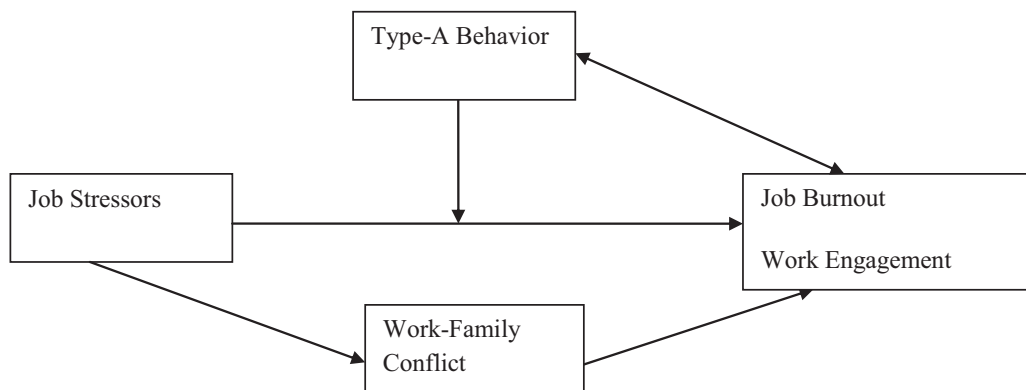


Figure 1. Theoretical model

H1: Job stressors are positively related to job burnout and negatively related to work engagement.

H2: Work-family conflict is positively related to job burnout and negatively related to work engagement.

H3: Work-family conflict mediates the effect of job stressors upon job burnout and work engagement.

H4: Type A behaviour is positively related to job burnout and negatively related to work engagement.

H5: Type A behaviour moderates the effect of job stressors upon job burnout and work engagement.

## **Method**

### *Participants and procedures*

The examined group comprised medical staff from Czestochowa, Łowicz, and Skarzysko-Kamienna – physicians, nurses, medical rescuers, and physiotherapists (N=282). All participants were hospital workers. It was an incidental, rather than



random, sampling. Women constituted a majority of the study participants (N=240; 85%). The examinees' age ranged from 23 to 65 (M=41.1; SD=7.96). Work experience in the job ranged from one year to 40 years (M=19.1; SD=8.77). The average time of working was 46 hours per week (SD=15.07).

All participants received a paper-and-pencil questionnaire with an accompanying letter that explained the purpose of the study, emphasized voluntary participation and guaranteed confidentiality. Participants were asked to fill out the questionnaire and put it back into an envelope that was collected by research assistants. Of the 350 questionnaires distributed, 306 were returned giving a return rate of 87%. However, only 285 (81%) were properly filled in and used for data analysis while 21 were incompletely filled in and were discarded.

#### *Measurement of the variables*

In the study five variables were included, and measured with seven standard examination tools – questionnaires. Three were used to measure job stressors, namely interpersonal conflict, organisational constraints, and workload. Single questionnaires were utilised to measure work-family conflict, type A behaviour pattern, job burnout, and work engagement.

*Job stressors.* In order to measure this variable three scales were used – *Interpersonal Conflicts at Work Scale (ICAWS)*, *Organizational Constraints Scale (OCS)*, and *Quantitative Workload Inventory (QWI)* by Spector and Jex (1998). In validation studies made by the authors of the questionnaires, the respective reliability coefficients - Cronbach's  $\alpha$  - for the scales were 0.74 for ICAWS, 0.85 for OCS, and 0.81 for QWI. Validity of the scales, were satisfactory, and were defined by correlations with such factors as anxiety as a trait and anxiety as a state, by depression, frustration, and negative affect (Spector & Jex, 1998).

*Work-family conflict.* This variable was measured by means of the work-family and family-work conflicts questionnaire by Netemeyer and co-workers (Netemeyer et al., 1996), in the Polish adaptation by Zalewska (2008). Both conflict types were measured with two separate seven-point scales (from 1 – I do not agree at all, to 7 – I fully agree), with each one comprising five items. Analysis included the first five items which applied to work-family conflict. Three of them referred to conflict of demands, one – to time, and one – to tension. The scale had high reliability, Cronbach's  $\alpha$  was 0.89. The theoretical validity of the tool was evidenced by its negative relations of work-family conflict with job and life satisfaction, and organisational attachment, and its positive relations with role stress, psychological tension, and burnout (Netemeyer et al., 1996).

*Type A behaviour pattern.* This variable was measured with Framingham's Type A Scale, in the Polish adaptation by Juczyński (2001). The scale comprised

ten statements, with five statements referring to each of the two subscales – rivalry and hurry. High scores on the scale meant type A personality, low scores – type B personality. Reliability of Cronbach's  $\alpha$ 's Polish version was 0.62. Its validity was evidenced by a negative relation with relieved anger and a positive relation with stress and ambition.

*Job burnout.* Job burnout was measured with the sixteen-point scale OLBI (*Oldenburg Burnout Inventory*) by Demerouti and her co-workers (2003). It consisted of two subscales – exhaustion and disengagement from work, which combine to the general burnout coefficient. The reliability coefficient - Cronbach's  $\alpha$  – ranged from 0.74 to 0.92, depending on the group examined. Correlation between the two job burnout subscales was  $r=0.52$ . The theoretical validity was evidenced by a strong correlation with burnout three symptoms measured with the MBI-GS questionnaire (Demerouti et al., 2003). In the current study only the general coefficient of job burnout was used (Cronbach's  $\alpha=0.87$ ).

*Work engagement.* This variable was measured with the UWES scale (*Utrecht Work Engagement Scale*) by the Dutch authors (Schaufeli et al., 2002). It included seventeen statements that measured three indicators of engagement – vigour, commitment to work, and work absorption. This tool is characterised with good psychometric parameters. The reliability coefficient - Cronbach's  $\alpha$  – was 0.93 for the whole scale. For single scales it ranged from 0.82 to 0.92 (Schaufeli & Bakker, 2002). In the current study the global indicator of work engagement was analysed ( $\alpha=0.95$ ).

## **Results**

In order to verify the hypotheses we used correlation analysis (H1, H2, & H4) and regression analysis for mediating (H3) and moderating effects (H5).

### *Descriptive statistics*

In Table 1 the matrix of correlations is contained for the variables included in the research. It shows that there are positive correlations among the three analysed job stressors and also between the stressors and work-family conflict. A positive relation also exists between the general indicator of type A behaviour pattern and work-family conflict and between type A and two stressors – organisational constraints and workload. Strong organisational constraints are linked to high level of hurry, and strong workload is linked to high rivalry. As far as demographic variables were concerned, it appears that work engagement among medical staff becomes lower with age and work experience. A greater number of work hours is accompanied with more frequent interpersonal conflicts, higher level of workload, and stronger work-family conflict.

Changeable	M	SD	1	2	3	4	5	a	b	6	7	8	9
1. Interpersonal conflict at work	1.41	0.71	-										
2. Organizational constraints	1.86	0.74	0.51***	-									
3. Quantitative workload	3.31	0.89	0.28***	0.43***	-								
4. Work-family conflict	3.55	1.61	0.38***	0.29***	0.21***	-							
5. Type-A behavior	0.61	0.18	0.09	0.14*	0.13*	0.37***	-						
(a) Hard driving/Competitiveness	0.60	0.16	-0.03	0.01	0.15*	0.21**	0.77***	-					
(b) Time pressure	0.61	0.26	0.14*	0.19**	0.09	0.39***	0.92***	0.46***	-				
6. Job Burnout	2.35	0.55	0.34***	0.40***	0.32***	0.55***	0.38***	0.15*	0.44***	-			
7. Work Engagement	4.01	1.17	-0.31***	-0.47***	-0.20***	-0.29***	-0.06	0.08	-0.14*	-0.59***	-		
8. Age	42.01	7.97	0.08	0.05	-0.12*	0.01	-0.01	-0.07	0.04	0.08	-0.16**	-	
9. Job seniority	19.15	8.77	0.06	0.01	-0.06	-0.04	-0.01	-0.03	-0.01	0.10	-0.17**	0.88***	-
10. Work hours weekly	46.47	15.07	0.14*	0.04	0.13*	0.29**	0.08	0.13*	0.03	0.08	-0.03	0.06	0.1

\* $p < 0.05$  \*\* $p < 0.01$  \*\*\* $p < 0.001$

Table 1. Means, standard deviations and correlations among study variables

### *Job burnout and work engagement correlates*

In **H1** we predicted that there would be a positive relation between job stressors and job burnout and a negative relation between job stressors and work engagement. The hypothesis was fully confirmed by correlation analysis (Table 1). Job burnout was accompanied with high levels of interpersonal conflict ( $r = 0.34$ ;  $p < 0.001$ ), organisational constraints ( $r = 0.4$ ;  $p < 0.001$ ), and workload ( $r = 0.32$ ;  $p < 0.001$ ); Whereas work engagement was linked to low levels of interpersonal conflict ( $r = -0.31$ ;  $p < 0.001$ ), organisational constraints ( $r = -0.47$ ;  $p < 0.001$ ), and workload ( $r = -0.20$ ;  $p < 0.001$ ). According to **H2**, there should be a positive relation between work-family conflict and job burnout, and a negative one between conflict and work engagement. This was confirmed by the research results which displayed a positive correlation between the conflict and job burnout ( $r = 0.55$ ;  $p < 0.001$ ) and a negative correlation between conflict and work engagement ( $r = -0.29$ ;  $p < 0.001$ ). In **H4** we predicted that the global indicator of type A behaviour pattern and its two single components would be positively related to job burnout and negatively related to work engagement. It appeared that job burnout was really positively related to type A behaviour ( $r = 0.38$ ;  $p < 0.001$ ) and to its components – rivalry ( $r = 0.15$ ;  $p < 0.05$ ) and hurry ( $r = 0.44$ ;  $p < 0.001$ ). However, work engagement was negatively related only to one single component of type A behaviour – hurry. Thus, hurry favoured job burnout and lowered engagement. General indicator of type A behaviour and also its second component (rivalry) did not correlate with work engagement. These data constituted partial confirmation of **H4**.

### *Mediating role of work-family conflict*

In **H3** we predicted that job stressors would influence job burnout and work engagement by means of work-family conflict. In order to verify this hypothesis we used Baron and Kenny's statistical inference procedure (1986). Simply put, the procedure is aimed at showing that an independent variable predicts a mediator (the so-called path a), the mediator predicts a dependent variable with the independent variable being controlled (path b), and the independent variable predicts the dependent variable with the mediator being controlled (path c'). Moreover, a direct relation between the independent the dependent variable, with the mediator excluded, is tested (path c). Talking about the existence of mediation is allowed when the statistical significance of values  $\beta$  of paths a and b are fulfilled, and values  $\beta$  of paths c and c' are different. The mediation may be additionally checked with the Sobel's test (<http://people.ku.edu/~preacher/sobel/sobel.htm>). In our hypothesis, the data analysis ought to show the following: job stressors predicts work-family conflict [X on M, path a]; work-family conflict predicts burnout

and work engagement, with job stressors being controlled [M(X) on Y, path b]; job stressors predicts burnout and work engagement [X on Y, path c]; and the dependence between stressors and burnout and work engagement will change after including work-family conflict [X(M) on Y, path c’].

	Job burnout			Work engagement		
Mediator: Work-Family Conflict	Interpersonal Conflict	Organizational Constraints	Quantitative Workload	Interpersonal Conflict	Organizational Constraints	Quantitative Workload
Mediation Paths						
X→Y (c)	0.34***	0.40***	0.32***	-0.31***	-0.47***	-0.20***
X→M (a)	0.38***	0.29***	0.21***	0.38***	0.29***	0.21***
M(X) →Y(b)	0.50***	0.48***	0.51***	-0.21***	-0.17**	-0.26***
X(M) →Y (c’)	0.14**	0.27***	0.20***	-0.23***	-0.42***	-0.14*
Sobel Test	z = 3.02***	z = 2.33**	z = 1.99*	z = -1.68*	z = -2.04*	z = -1.91*

Table 2. Standardized coefficients  $\beta$  for effect of job stressors on job burnout and work engagement by participation of work-family conflict

Results of the mediation analysis are presented in Table 2. It turns out that the job stressors included in the research exert a direct impact (path c) and an indirect impact, through work-family conflict (path c’), upon both job burnout and work engagement. It is shown in Figures 2, 3, and 4 that high levels of interpersonal conflict, organisational constraints, and workload indicate high work-family conflict (path a), and the latter indicates high job burnout and low work engagement (path b). The mediating effects were additionally confirmed with the Sobel tests (Table 2). The results confirm H3.

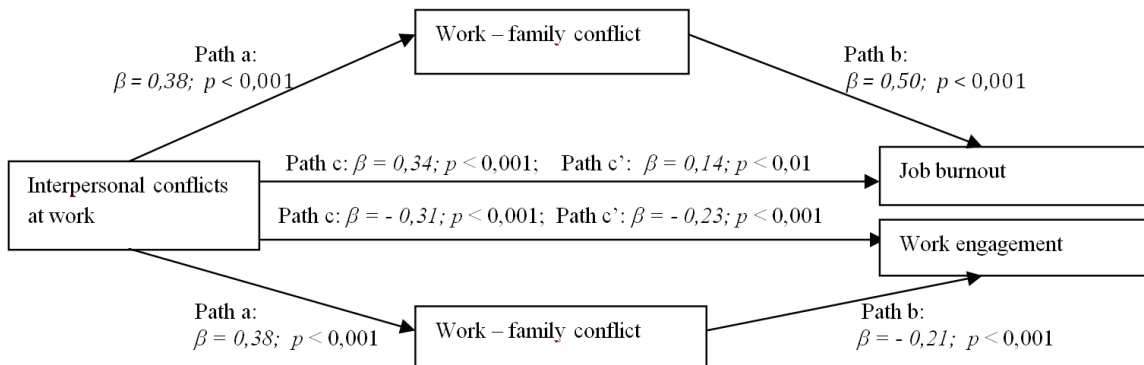


Figure 2. Work – family conflicts mediates effect of interpersonal conflict at work on job burnout and work engagement

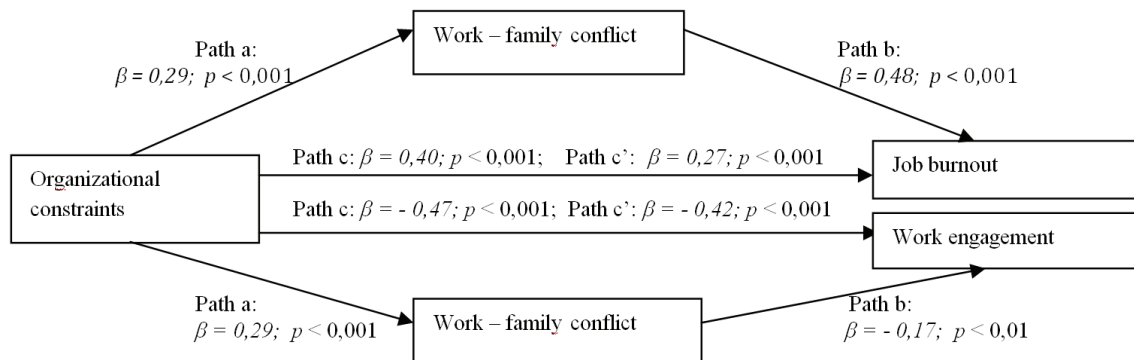


Figure 3. Work – family conflict mediates effect of organizational constraints on job burnout and work engagement

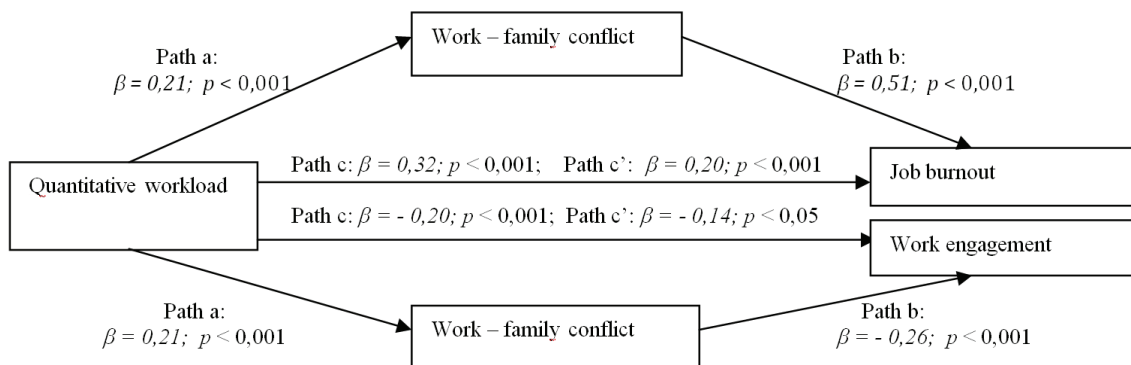


Figure 4. Work – family conflict mediates effect of quantitative workload on job burnout and work engagement

### Moderating role of type A behaviour pattern

In **H5** we predicted that type A behaviour pattern would moderate job burnout and work engagement stressors. In order to verify this hypothesis we conducted six hierarchical regression analyses. To avoid the common line error, we made separate analyses for each of the three job stressors. Thus, for each variable three regression analyses were made. After standardising the data, in the first step we included one of the job stressors and type A behaviour pattern to the regression equation, and in the second step we included interaction values between the analysed stressor and type A.

Predictors	Job stressors												
	Interpersonal Conflict at Work					Organizational Constraints					Quantitative Workload		
	B	SE	$\beta$	$\Delta R^2$		B	SE	$\beta$	$\Delta R^2$	B	SE	$\beta$	$\Delta R^2$
Step 1				0.24***					0.27***				0.22***
Job stressors	0.17	0.03	0.31***		0.20	0.03	0.35***			0.15	0.03	0.27***	
Type-A behaviour	0.19	0.03	0.34***		0.17	0.03	0.30***			0.19	0.03	0.35***	
Step 2				0.02*					0.02**				0.001
Job stressors × Type-A behaviour	-0.08	0.03	-0.13*		-0.08	0.03	-0.15**			0.01	0.03	0.02	

\* $p < 0.05$  \*\* $p < 0.01$  \*\*\* $p < 0.001$

Table 3. Regression of job burnout on job stressors and type A behavior.

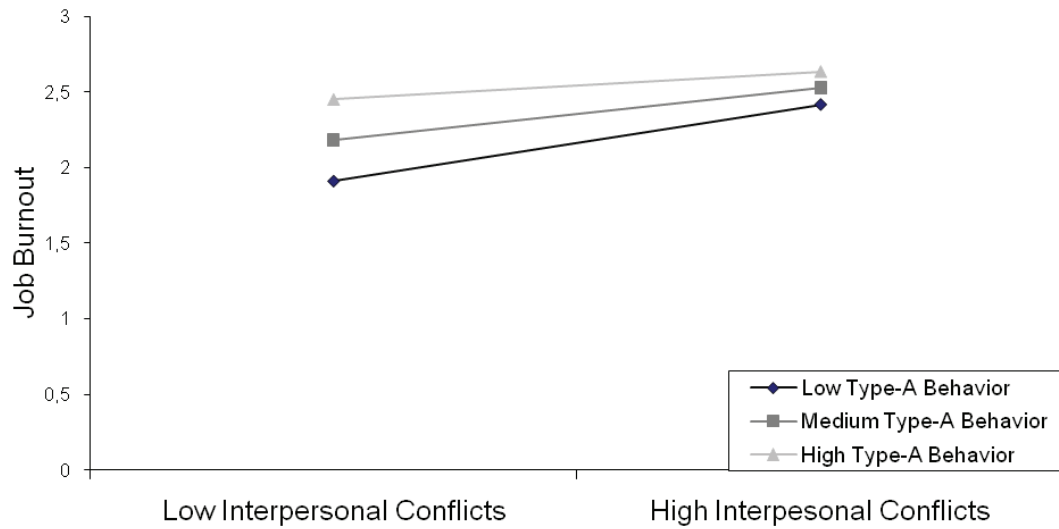


Figure. 5. Type-A behavior moderates effect of interpersonal conflicts at work on job burnout

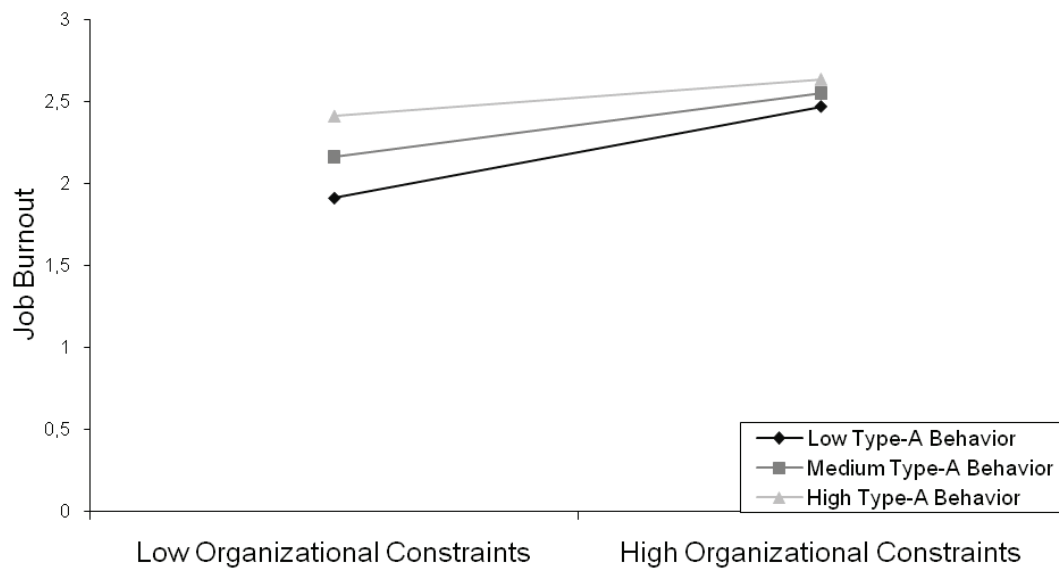


Figure 6. Type-A behavior moderates effect of organizational constraints on job burnout

Regression analysis has shown that high level type A behaviour pattern predicates high job burnout (Table 3). Moreover, the higher the job stressor level, the higher the job burnout. Two of the three interaction effects appeared significant for job



burnout – interaction between type A and interpersonal conflict ( $\beta = - 0.13$ ;  $p < 0.05$ ) and that between type A and organisational constraints ( $\beta = - 0.15$ ;  $p < 0.01$ ). In Figures 5 and 6 show that with low level job stressors (interpersonal conflict and organisational constraints) the burnout level is higher for persons with high type A. With high level job stressors, job burnout grows for persons with low and moderate type A, but not for those with high type A. In their case low or high level stressors do not differentiate the burnout level. Based on the data presented above, it may be claimed that the moderating effect of type A behaviour pattern has been confirmed for the relation between the two stressors and burnout. These data are consistent with the research results obtained by Jamal (1999).

Predictors	Job stressors											
	Interpersonal Conflict at Work				Organizational Constraints				Quantitative Workload			
	B	SE	$\beta$	$\Delta R^2$	B	SE	$\beta$	$\Delta R^2$	B	SE	$\beta$	$\Delta R^2$
Step 1				0.10***				0.22***				0.04**
Job stressors	-0.37	0.07	-0.32**		-0.54	0.06	-0.46***		-0.22	0.07	-0.19**	
Type-A behaviour	-0.02	0.07	-0.02		0.02	0.07	0.02		-0.05	0.07	-0.04	
Step 2				0.03**				0.02*				0.001
Job stressors × Type-A behaviour	0.22	0.08	0.16**		0.11	0.06	0.10*		-0.04	0.07	-0.03	

\* $p < 0.05$  \*\* $p < 0.01$  \*\*\* $p < 0.001$

Table 4. Regression of work engagement on job stressors and type A behavior

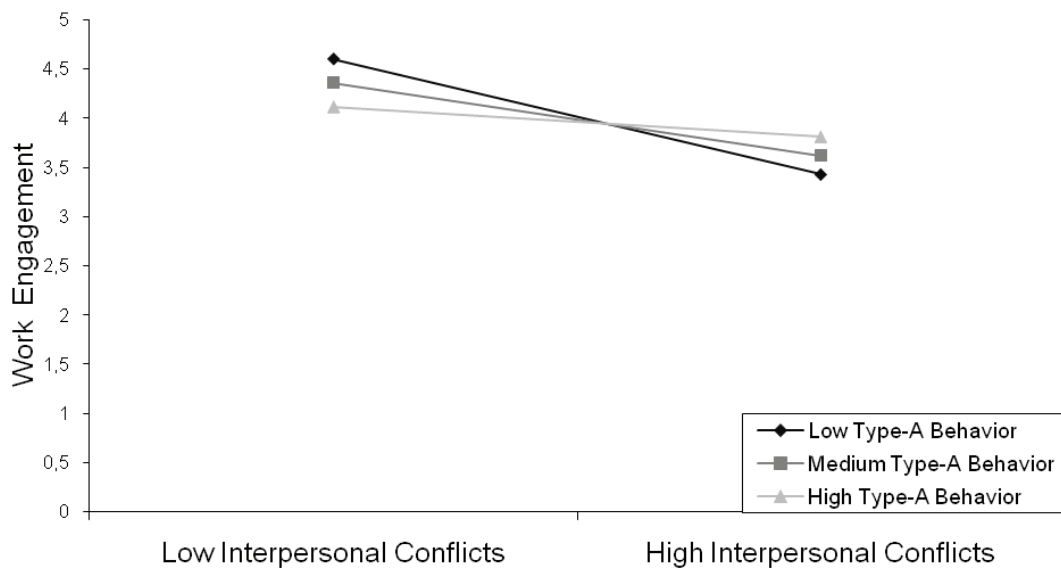


Figure. 7. Type-A behavior moderates effect of interpersonal conflicts at work on work engagement

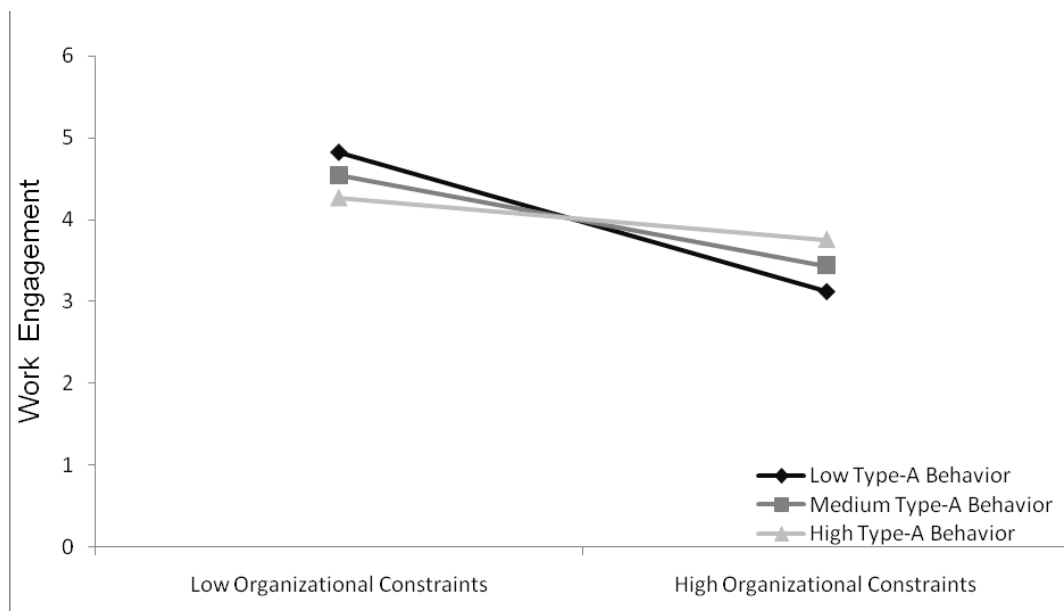


Figure. 8. Type-A behavior moderates effect of interpersonal conflicts at work on work engagement

All analyses that predicted work engagement have shown that low level job stressors predicted high engagement (Table 4), whereas type A behaviour pattern did not Predict work engagement. As in the case of burnout, a statistically significant effect was found for two interactions – between type A and interpersonal conflict ( $\beta = 0.16; p < 0.01$ ) and between type A and organisational constraints ( $\beta = 0.1; p < 0.05$ ). Figures 7 and 8 show that with low level job stressors (interpersonal conflict and organisational constraints) persons with strong type A behaviour displayed the lowest work engagement, as compared to the other two groups. In high level stressors, engagement became lower among persons with low and moderate type A, and it was practically the same among those with high type A. This means that with high level stressors, persons with high type A displayed the strongest work engagement, as compared to other employees. These data confirmed the moderating effect of type A behaviour pattern in reference to interpersonal conflict, and organisational constraints to work engagement. To sum up, four of the six predicted interaction effects appeared statistically significant – two of them for burnout and two for work engagement. The results confirmed H5 to a large extent.

#### *Discussion and conclusions*

In our research, we tested the mediating role of work-family conflict and the moderating role of type A behaviour pattern in the relations among job stressors, burnout, and work engagement. We also wanted to define the way in which work-family conflict and type A behaviour pattern are linked to burnout and work engagement. The obtained results confirmed our hypotheses to a large extent. It appears that job stressors and work-family conflict correlated positively with job burnout and negatively with work engagement (H1 and H2). Similar data were obtained earlier by other researchers (e.g.: Bakker et al., 2003; Kossek & Ozeki, 1999). Type A behaviour pattern and its two single components (rivalry and hurry) displayed a positive correlation with job burnout, which is consistent with the research results obtained by Hallberg and co-workers (2007). Moreover, there was a weak negative relation between hurry as a component of type A and work engagement (H4). The mediating role of work-family conflict was confirmed. The three job stressors in the research led to greater work-family conflict and thus contributed to an increase in job burnout and a decrease in work engagement (H3). The results showed partial (not full) mediation. Job stressors affected work engagement and job burnout indirectly through conflict and also directly, probably via other mechanisms, which were not included in the research. These results are consistent with some earlier studies (Janssen et al., 2004; Peeters et al., 2005).

In our opinion, the most interesting data have been provided by the analysis of moderation. It turns out that in a group of persons with strong type A behav-

behaviour pattern, the level of job stressors does not differentiate job burnout and work engagement. To put it differently, the burnout and involvement level among persons with high type A is similar in both low and high stress conditions, whereas in persons with low type A, job burnout grows and involvement becomes lower under strong occupational stress (H5). These data confirm the observations made by Perez-Garcia and Sanunan (1996) that persons with type A behaviour pattern use their own resources in a less economic way, as they invest a large part of them in both high and low demand situations. There arises a question about reasons for this phenomenon. It is probably linked to how employees with type A behaviour pattern function. On the one hand they tend to undertake challenges, to place high demands on themselves, to put high effort in their work and to strive after perfection; on the other hand they permanently heighten reactivity and tension (Hallberg et al., 2007). Even if a workplace does not contain any stressing factors, persons with type A behaviour fill the situation with their own tension which results from their attitude to tasks. As people usually react to stressors only up to a certain moment (Strelau, 2006), it is possible that due to high initial stress levels in different situations, persons with type A react more weakly to stressors from the environment. Their reactivity has its upper border too. This discussion is only an attempt at explaining the received results and it demands further empirical studies.

It could be worthwhile to refer to the ongoing dispute present in the literature, concerning the mutual relationship between burnout and work engagement. The first approach places job burnout and work engagement at two opposite ends of a single phenomenon (Maslach et al., 2001). Other researchers, however, claim that those states represent two different spheres. The data collected so far do not give a clear answer (Schaufeli et al., 2003). Correlation analysis reveals a strong negative relationship between burnout and work engagement, which can be viewed as proof of the opposing nature of the two phenomena. However, a more thorough mediation analysis shows that burnout and work engagement are affected differently by the three studied job stressors, which suggests that they are two mutually complementary states. What is more, a moderator analysis reveals that type A behaviour pattern has a different moderating effect in the relationship between job stressors and burnout, and between job stressors and work engagement. This, however, is not sufficient to reach a definitive conclusion about the mutually opposing or complementary character of burnout and work engagement. Thus, further research in this field is needed.

Besides their cognitive values, the obtained data also possess a practical value, especially for activities performed by managers, leaders of workers' teams, and directors of hospitals. The data show the significance of individual differences in managing people and the necessity for diversifying treatment in dealing with a

particular employee. For instance, if it is assumed that – according to the research results – job resources (e.g. social support) diminish the perceived occupational stress (e.g. Bakker et al., 2003), it may be concluded that giving support should have a particularly beneficial effect for persons with high type A behaviour, who experience tension from both strong and weak stressors. On the other hand it is possible that these persons will display exceptionally weak ‘sensitivity’ to the provided support. However, empirical verification for these conjectures is needed.

External validity of the results may be limited by the predominance of women in the sample. The data may apply to men to a lesser extent. Moreover, the research concerned only one (and quite specific) group of persons – a medical staff. It also ought to be mentioned that a majority of the measurement tools used in the study – although they possess good psychometric parameters – are still being validated. For example, lack of correlation between hard driving/competitiveness and interpersonal conflicts at work and also between time pressure and the number of working hours may be questionable as to whether the A-Framingham scale accurately measures type A behaviour pattern. Also the fact that the sample was not random indicates that the results should be referred to with some caution. Another limitation occurs from the fact that the moderation analyses were made on the basis of results obtained in a cross-sectional study, not a longitudinal study or an experimental one. Both burnout and engagement are dynamic processes, which develop from long-lasting stressors and resources; that is why it is very important to catch the dynamic character of these developing phenomena for – to use words by Hobfoll (2006) – ‘the spiral of their mutual effects’. Such possibilities are offered mainly by longitudinal studies, and this type of study would be especially recommended in the further search for dependencies among the analysed variables.

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